The Practical Examination and How it Correlates With the Triple Jump, Tutorial, and Written Examination

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(Submitted in partial fulfillment of
the requirements for the degree of
Master of Education)

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Acknowledgements

I would like to acknowledge the help that has been afforded to me by the Faculty of Education at Brock University. Particularly, I would like to extend my appreciation to Patricia Cranton for her unique abilities in having helped me make this a meaningful experience, to Kris Kirkwood for being my class advisor for this thesis, to Richard Bond for being my committee member, and to Dr. Khan for being my external examiner.

I would also like to thank Penny Salvatori and Barb Miller for their support during the last four years. They created an environment of encouragement for my endeavours.

Joanne Heales' assistance in the area of statistical analysis has proven invaluable to me. I would not have been able tackle this aspect of my study without her.

Jack, Matthew, and Daniel have been and always will be my lifeline. My love goes to them for their patience and understanding. And lastly, my sincere gratitude is extended to Nancy and Anna for their help.

Abstract

This study explored the relationship between the practical examination and other course evaluation methods, specifically, the triple jump, tutorial, and written examination. Studies correlating academic and clinical grades tended to indicate that they may not be highly correlated because each evaluation process contributes different kinds of information regarding student knowledge, skills, and attitudes. Six hypotheses were generated stating a positive relationship between the four evaluation methods. A correlation matrix was produced of the Pearson Product Moment correlation co-efficients on the four evaluation methods in the second and third year Occupational Therapy Technique and Clinical Problem Solving courses of the 1988 and 1989 graduates (n=45). The results showed that the highest correlations existed between the triple jump and the tutorial grades and the lowest correlations existed between the practical examination and written examination grades. Not all of the correlations, however, reached levels of significance. The correlations overall, though, were only low to moderate at best which indicates that the evaluation methods may be measuring different aspects of student learning. This conclusion supports the studies researched. The implications and significance of this study is that it will assist the faculty in defining what the various evaluation methods measure which will in turn promote more critical input into curriculum development for the remaining years of the program.

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CHAPTER ONE

INTRODUCTION

The Mohawk-McMaster Occupational Therapy (O.T.) Program has been organized into a four-year curriculum with the three year "diploma" portion based at Mohawk College and the fourth year "degree" portion based at McMaster University (see Appendix A for curriculum overview).

Drawing on the innovations in the McMaster University undergraduate medical program, Mohawk College developed the O.T. curriculum with an emphasis on self-directed, problem-based learning, clinical reasoning, and group dynamic skills. The goal of the program is to develop an occupational therapist who would be able to provide good patient care and implement the Program's philosophy of O.T.

Practical examinations have been an evaluation method used since the beginning of the program. They served as a summative method of evaluation in the O.T. Techniques courses (O.T.T.) and Clinical Problem Solving courses (C.P.S.), to determine the students' competency in interviewing, assessment, and/or treatment skills. The rationale for using practical examinations are:

1. They assess complex student learning in a clinical context (real or standardized patients are used);

2. they ensure that students demonstrate basic knowledge and skills prior to entering clinical placements, and

3. they serve to assess learning that occurs in the O.T.T. and C.P.S. courses (complementary courses).

Over the years, feedback has been received from some students and faculty that the practical examinations do not assess relevant clinical student knowledge and skills. Concerns raised were that:

1. The practical examinations are too stressful;
2. the practical examinations are weighted too heavily;
3. the grades achieved in the practical examinations do not reflect the students' relevant clinical abilities in knowledge and skills as demonstrated in a real clinical placement, and
4. the grades achieved in the practical examinations do not correspond to the grades achieved in the other course evaluation components.

Formative evaluation is a necessary process in any program. It ensures competency in students and faculty, and quality of the program itself. The program has internal procedures to ensure quality which include the O.T. Department Review Committee, O.T. Faculty Retreat, O.T. Advisory Committee,

and Mohawk College Board of Governors' Program Reviews. As a result, ongoing attention is given to the concerns of students and staff. Changes have occurred over the years in the area of student evaluation to minimize student stresses and concerns and also to ensure that basic student competencies are maintained.

Research Problem– Ongoing critical feedback has been received over the years from students and faculty, concerning the practical examinations. Valid concerns were raised that questioned the value of this evaluation method in assessing complex student learning, and that questioned the relationship between this evaluation method with other evaluation methods used in the course.

Research Question–1) Are the grades achieved in the practical examination significantly related to the grades achieved in the other course evaluation components, specifically, the triple jumps, tutorials, and written examination?

In researching these questions, the following assumptions are made:

1. Courses in the curriculum have been designed and sequenced to build upon previous learning and experiences.

2. As the students move through the years of study, they are exposed to learning situations that are less didactic/structured and more self-discovery/ unstructured. The evaluation strategies used reflect this change.
3. The students in the course have had minimal to no previous experience in performing in a practical examination situation.
4. Evaluators of the practical examination receive training by the course co-ordinator to ensure that he/she is sufficiently skilled at giving accurate feedback and grades before the evaluator evaluates the students independently.

In researching these questions, the following limitations may occur:

1. The small sample size may not be representative of the student population that has gone through the practical examination.
2. Results from the study will have limited external validity. The data are drawn from the only college-trained occupational therapy program. It is also the only occupational therapy program that uses practical examinations in this manner (with respect to weighting, consistency of use, and format) throughout the entire program.

3. There is limited research done on the practical examinations as devised by the Mohawk College occupational therapy program. Background literature will have to be drawn from other evaluation methods with similar characteristics.

Given that there are some terms used in this study that may not be familiar to the reader, the following are definitions of frequently mentioned terms, listed in alphabetical order:

Definitions

Assessment

The process of collecting, analyzing, and interpreting information obtained through observation, interview, record review, and testing.

Clinical placements

The schools, community, and clinical settings whereby the students are supervised while performing O.T. techniques.

Clinical problem solving course (C.P.S.)

(OC 404/504/604/704/804/904)

A series of courses which run concurrently with the O.T. Techniques courses throughout the program. Students examine the concepts and practice of occupational therapy through exploration of health care problems and group problem-solving.

Competence

The knowledge, skills, values, and attitudes needed to properly carry out one's professional activity.

Occupational therapy (O.T.)

The art and science which utilizes the analysis and application of activities specifically related to occupational performance in the areas of self-care, productivity, and leisure.

Occupational therapy techniques course (O.T.T.)
(OC 403/503/603/703/803/903)

A series of courses which run concurrently with the Clinical Problem Solving courses throughout the program. Each course combines lecture and lab work to assist the student in developing O.T. assessment and treatment skills in all areas of practice (pediatrics, physical disabilities, psychiatry, and geriatrics).

Practical examination/evaluation

A summative evaluation method used in the Clinical Problem Solving courses and Occupational Therapy Techniques courses to determine the students' competency in O.T. interviewing, assessment, and/or treatment skills using real or standardized patients.

Standardized patients

Healthy persons who have been carefully trained to simulate the historical, physical, and emotional features of an actual patient with sufficient realism to prevent detection by experienced clinicians.

Treatment/intervention

The process of interceding to affect functional change in occupational performance by the use of purposeful activity. It is influenced by the client's developmental stage, state of mind, current and expected health status, time, setting, and the resources available.

Triple jump

An evaluation method which is a three-part oral examination used to assess knowledge, clinical reasoning skills, and time management in relation to a specific patient problem.

Written examination

An evaluation method used to assess knowledge by use of techniques such as multiple choice, true/false, short answer, and essay-type.

CHAPTER TWO

LITERATURE REVIEW

The literature review will discuss the following: rationale for evaluation and how it fits into the Occupational Therapy curriculum, evaluation methods as they pertain to learning domains, and studies exploring the relationship between academic and clinical performance.

Rationale For Evaluation

Evaluation is based on a set of beliefs about what should be done and what can be accomplished. Establishing a base for evaluation clarifies these underlying beliefs and gives direction for subsequent evaluation activities. The orientation of the program to be evaluated and the philosophy of the school in which the program is being used will influence the purpose and approach taken during an evaluation (Miller and Seller, 1985).

The O.T. program has a combination of a transmission and transaction orientation. The transmission position incorporates and emphasizes the importance of components such as content orientation, mastery-programmed instruction, and competency-based learning. Education is based on what can be measured, observed, and recorded (Bobbitt, 1971; Bruner, 1966; Phenix, 1958). The transaction position encorporates concepts of curriculum which facilitate problem-solving, application

of problem-solving skills within social contexts in general, and within the context of the democratic process, and development of cognitive skills within the academic disciplines (Dewey, 1967; Taba, 1962; Tyler, 1949). The teaching/learning approaches used in the O.T. curriculum reflect a balance between structured (transmission) and discovery learning (transaction) philosophies. Discovery learning approaches emphasize the exploration of problems or situations by students and the resultant "discovery of knowledge" through these experiences. These are balanced by structured learning experiences where emphasis is placed on sequencing of learning from simple to complex. The student works through situations which provide basic facts, then moves to conceptual knowledge and rules, and finally uses problems to apply and practice this competency (Mohawk College Occupational Therapy Programme, Curriculum Manual, 1988).

Student evaluation serves many purposes. Primarily, it is meant to help the student become a safe and competent clinician. Ongoing information is provided back to the student so that academic progress is monitored. Better educated students can lead to greater student and faculty satisfaction. It is also meant to assure society that only those students who are indeed competent will graduate and become health care professionals with a mission to provide quality care to individuals. This "gateway" function acknowledges the accountability to the society at large (Halpern, 1987).

Satisfactory formulation of objectives provides clear specifications to indicate just what the educational job is. The objectives help define the set of criteria for selecting content, for suggesting learning activities, for deciding on the kind of teaching procedures to follow, and to carry on all the further steps of curriculum planning (Tyler, 1949). The taxonomy of educational objectives is a classification of goals of the educational system and as well a system for developing goals. Bloom (1956), and Krathwohl, Bloom, and Masia (1964) developed a taxonomy and divided it into two domains, the cognitive and the affective, recognizing that the domains overlap. The cognitive domain deals with solving intellectual tasks, from simple recall of facts to original ways of combining, synthesizing, and evaluating new ideas and materials. The organizing principle is complexity. It runs from simple to complex and from concrete to abstract. The affective domain includes objectives dealing with attitudes, values, interests, appreciation, and social emotional adjustment. The organizing principle for the affective domain is internalization, or how fully and deeply an emotion, attitude, or appreciation has become part of a person. The psychomotor domain is concerned with manipulative skills, motor skills, and acts requiring neuromuscular coordination. The behaviors are observable voluntary actions or action patterns performed by the learner and designated by the educator as being an essential portion of the educational goal (Harrow, 1972). Table 1-3 outlines the components of the domains.

Table 1: Synopsis of the Taxonomy of Educational Objectives*

COGNITIVE DOMAIN	
1.0 Knowledge	1.10 -knowledge of specifics 1.20 -knowledge of ways and means of dealing with specific facts 1.30 -knowledge of the universals and abstractions in a field
2.0 Comprehension	2.10 -translation 2.20 -interpretation 2.30 -extrapolation
3.0 Application	-use of abstractions in particular, concrete situations
4.0 Analysis	4.10 -analysis of elements 4.20 -analysis of relationships 4.30 -analysis of organizational principles
5.0 Synthesis	5.10 -production of a unique communication 5.20 -production of a plan, or proposed set of operations 5.30 -derivation of a set of abstract relations
6.0 Evaluation	6.10 -judgement in terms of internal evidence 6.20 -judgement in terms of external criteria

* (from Bloom, 1956, pp. 201-207)

Table 2: Synopsis of the Taxonomy of Educational Objectives*

AFFECTIVE DOMAIN	
1.0 Receiving	1.10 -awareness
	1.20 -willingness to receive
	1.30 -controlled or selected attention
2.0 Responding	2.10 -acquiescence in responding
	2.20 -willingness to respond
	2.30 -satisfaction in response
3.0 Valuing	3.10 -acceptance of a value
	3.20 -preference of a value
	3.30 -commitment
4.0 Organization	4.10 -conceptualization of a value
	4.20 -organization of a value system
5.0 Characterization of a Value	5.10 -generalized set
	5.20 -characterization

* (from Krathwohl and Bloom, 1964, pp. 176-185)

Table 3: Synopsis of the Taxonomy of Educational Objectives*

PSYCHOMOTOR DOMAIN	
Perception	1.0 -passive sensory perception of what is to be done
Set	2.0 -learner is mentally and physically set to do the task
Guided Response	3.0 -learner performs task with instruction and guidance from teacher
Mechanism	4.0 -responses are ellicited automatically and mechanically -responses do not require mental attention
Complex Overt Response	5.0 -individual learned skill is put into a larger context
Adaptation	6.0 -skill adjustment occurs because of unusual circumstances
Origination	7.0 -development of new ways to perform same task

* (from Simpson, 1970, pp. 10-14)

The three taxonomies contain definitions for each of the categories, bringing attention to selection of a full range of objectives from "lower" level to "higher" level learning. They suggest to the program designer the choice of learning experiences likely to promote the objectives selected and appropriate evaluation instruments for each kind of learning or performance which the program hopes to evoke (Anderson, Ball, and Murphy 1975).

Evaluation Methods

Cranton (1989) suggests that when selecting evaluation strategies, instructors tend to rely on techniques with which they are familiar or those which are not time-consuming to score. The result may be that the type of student learning being evaluated does not match what is expected of students in the course. The testing procedures are divided into two categories: objectively scored tests and subjectively scored tests. The objectively scored tests include multiple choice tests, true-false tests, matching tests, and short answer tests. The subjectively scored tests include essay tests, oral tests, checklists, scales, comments, anecdotal records, and journals. The appropriateness of a particular test format may be dependent, to varying degrees, on: the domain and level of the student learning; practical considerations such as class size, facilities, time limitations, or certification requirements; and special student characteristics such as verbal ability, handicaps, age, or previous test experience.

Cranton (1989) developed a matrix, matching levels of

learning with appropriate testing techniques. Tables 4, 5, and 6 outline the appropriateness of the testing techniques with the cognitive, affective, and psychomotor domains. In the cognitive domain, all of the subjectively scored tests are appropriate for the knowledge and comprehension levels. The use of checklists and rating scales reveals the cognitive learning through performance. In the affective domain, the objectively scored techniques are only useful at the lower levels. The essay and oral tests are appropriate at the higher levels and observation techniques, such as checklists, rating scales, and anecdotal records are generally useful. In the psychomotor domain, the "paper and pencil" techniques are described as not being appropriate. They may be used to assess the overlap with the cognitive domain or the affective domain that may exist (e.g., outlining the steps in conducting a physical examination). In most cases, observation (checklist, rating scale) of either the student's performance or the product of that performance is the only appropriate testing technique.

The "Yes" designation indicates that the technique is always appropriate, the "Maybe" designation indicates that the technique can be appropriate in some situations, and the "No" designation indicates that the technique is never appropriate.

Given that there appears to be a systemmatic and sequential order to learning, whereby the student masters and moves from one level of complexity to the next, it would appear that there may exist some correlation with the outcome results. The

Table 4: Appropriateness of Testing Techniques in the Cognitive Domain*

	LEVELS OF DOMAIN					
	Know-ledge	Compre-hension	Applica-tion	Analy-sis	Synthe-sis	Eval-uation
TYPE OF TESTS						
Multiple Choice	Yes	Yes	Yes	Maybe	No	No
True/ False	Yes	Yes	No	No	No	No
Match-ing	Yes	Yes	No	No	No	No
Short Answer	Yes	Yes	Yes	Maybe	No	No
Essay Test	No	No	Maybe	Yes	Yes	Yes
Oral Test	No	No	Maybe	Yes	Yes	Yes
Check-list	Maybe	Maybe	Maybe	No	No	No
Rating Scale	No	No	Maybe	Maybe	Maybe	Maybe
Comments Anecdotal	Maybe	Maybe	Yes	Yes	Yes	Yes

* (from Cranton, 1989, p. 156)

Table 5: Appropriateness of Testing Techniques in the Affective Domain*

	LEVELS OF DOMAIN				
	Receiving	Responding	Valuing	Organization	Value Complex
TYPE OF TESTS					
Multiple Choice	Yes	Yes	Maybe	No	No
True/ False	Maybe	No	No	No	No
Matching	Maybe	No	No	No	No
Short Answer	Yes	Maybe	No	No	No
Essay Test	No	Maybe	Yes	Yes	Yes
Oral Test	No	Maybe	Yes	Yes	Yes
Checklist	Yes	Yes	Yes	No	No
Rating Scale	No	No	Yes	Yes	Yes
Comments Anecdotal	Yes	Yes	Yes	Yes	Yes

* (from Cranton, 1989, p. 157)

Table 6: Appropriateness of Testing Techniques in the Psychomotor Domain*

	LEVELS OF DOMAIN						
	Percep-tion	Set	Guided Resp.	Mechan-ism	Complex Overt R.	Adap-tation	Origin-ation
TYPE OF TESTS							
Multiple Choice	No	No	No	No	No	No	No
True/ False	No	No	No	No	No	No	No
Match-ing	No	No	No	No	No	No	No
Short Answer	No	No	No	No	No	No	No
Essay Test	No	No	No	No	No	No	No
Oral Test	No	No	Maybe	Maybe	Maybe	Maybe	Maybe
Check-list	Maybe	Maybe	Maybe	Maybe	Maybe	No	No
Rating Scale	Maybe	Maybe	Maybe	Maybe	Yes	Yes	Yes
Comments Anecdotal	Maybe	Maybe	Yes	Yes	Yes	Yes	Yes

* (from Cranton, 1989, p. 158)

student who performs well in objective evaluations, which are effective in assessing learning at the lower levels of the domains, should perform well in the subjective evaluations, which are effective in assessing the higher levels of the domains. The belief is that the student requires mastery of the lower levels before vertical growth can occur through each level within the same domain.

Studies

Research has indicated that the relationship between academic performance and clinical competence is low. Rheault and Shafernich-Coulson (1988) reported in their study that professional grade point average (GPA) and clinical competence were not significantly related ($p>.05$). The records of three classes of American physical therapy student graduates ($n=65$) were examined. They had felt that a significant relationship might exist because the professional GPA included acheivement in laboratory-based courses. They concluded that perhaps problem-solving capabilities, manual dexterity, or personal attitudes are more closely related than professional academic acheivement to clinical competence. This study contradicts an earlier study done by Pickles (1977), whereby he reported a relationship existed between didactic grades and clinical grades in the professional phase of a Canadian physical therapy program. The correlations ranged from .29 to .90 between didactic averages and clinical performance. The variations between the academic years, however,

indicated that the correlation did not reach the .05 level of significance for all the academic years studied. Another study done in the area of physical therapy was conducted by Tidd and Conine (1974). They obtained records from 285 alumni students and found that the correlation coefficient between the clinical performance and total academic achievement was only modest ($r=.39$). They felt that the high level of significance ($p<.001$) was sufficient enough to indicate that a student whose classwork was poor did not tend to do well in the clinic and a student who exelled academically did well clinically.

A study by Musher, Williams, and Chestnut (1987) compared subjective and objective measures of performance in a psychiatry clerkship. The sample was composed of 215 third-year medical students. The comparison between the clinical grades (subjective) and the examination grades (objective) revealed a low correlation ($r=.28$). However, the correlations were statistically significant at the $p<.01$ level. Their explanation for this was that objective measures test something different from what is being measured by subjective ratings by attending physicians. That is, the objective tests may not be measuring those aspects of performance, for example, skills and attitudes, that the attending physician find most consistent with their ideas of what a student should know or how he/she should behave in order to be a good physician.

Norcini, Webster, and Grosso (1987) investigated the relationship between medical residents' grades in clinical competence and certification examinations. Correlations between

the candidates examination performance and clinical performance were calculated for the 1985 candidates. The correlations were .37 for clinical judgement, .41 for medical knowledge, .34 for history taking skills, .36 for physical examination skills, .31 for procedural skills, .35 for medical care, .22 for attitudes, and .19 for humanistic qualities. Both knowledge and clinical judgement had modest relationships with examination performance, and the clinical skills and medical care correlations were almost as large. They felt that the low correlations between the examination scores and the ratings of attitudes and humanistic qualities might indicate that they measure an aspect of competence unrelated to the other components. The study, however, does not include the levels of significance to show which of the results are statistically significant.

Smith, Price, and Houston (1984) assessed 229 final year medical students using an objective structured clinical examination (OSCE), and compared the results with other assessments of the students made during and at the end of the undergradudate course. In the OSCE, each student passes through the same series of preordained stations, where clinical skills are assessed by the same examiners according to a predefined marking system. Marks are allocated to reflect the candidates' competence in taking histories, performing preset clinical tasks, evaluating physical signs, and interpreting various types of clinical data. Although the OSCE is considered an objective evaluation, components of it use subjective measures of evaluation. The OSCE mark was subdivided into a mark for all clinical stations and dependent

data questions (OSCE clinical) and all data questions independent of clinical stations (OSCE data). The researchers found that there was a weak correlation between OSCE clinical marks with multiple choice questions ($r=.11$, $p<.001$).

A study in 1980 by Lazar found no significant correlation between residents' ($n=40$) overall clinical performance and overall total scores on the American Board of Surgery In-Training Examination ($r=.267$). Although the significance level was not given, the author calculated the probability coefficients using a standard Biomedical Computer Program statistical program.

Another study conducted in the same year by Marienfeld and Reid found a slightly different result. They compared the performance on objective written examinations with subjective ratings of students by preceptors. The correlations coefficients for two classes were .42 ($p<.001$, 98 students) and 0.59 ($p<.001$, 90 students). They felt that the ratings in the written examinations reflect the preceptor's assessment of a student's knowledge.

O'Donahue and Wergin (1978) compared preceptor appraisal of clerkship performance with oral and written examinations. Correlation between clinical rating and oral examination was .254 ($p<.001$), and between clinical rating and written examination, .208 ($p<.01$).

The studies, although yielding varying results, have tended to indicate that academic and clinical grades are not highly correlated. They suggest that each evaluation process contributes different kinds of information regarding student knowledge and

competence. This information will be useful in helping identify the possible outcomes of this study.

The literature review in the area of occupational therapy resulted in extremely scant information. The profession is still very young and the focus in the literature is on research that will enhance clinical skills rather than educational skills. It was only during the last fifteen years that physical and occupational therapy programs were divided as separate professions in Canada. Therefore, most of the review has taken work done by other related health care professionals.

The weakness in this review is that there is no study which has compared practical examinations as defined by the Mohawk College O.T. Program with other evaluation methods. The practical examination was created out of a unique need at the time that the program first began. Political pressures from national and provincial associations advocating against a college-trained O.T. program meant limited support for clinical training opportunities. The practical examination was a means to assure the clinical supervisors that the students had basic clinical skills prior to entering clinical placements. The studies discussed in this review have compared academic grades with clinical grades which the student achieves over a specified period of time. Presumably, the clinical skills are seen more than one time and in a variety of mediums. The practical examination which assesses clinical skills, however, is conducted only once, with a real or standardized patient, during a period of two hours to one

and one half days. Nevertheless, despite the limiting parameters, the practical examination is designed to measure clinical competence. The students are expected, within the practical examination, to function as clinical problem-solvers who must be able to collect and interpret accurate and pertinent data, identify appropriate problems, formulate and implement a treatment program, and to re-evaluate the process involved. These are the skills required for clinical practice for the students and, ultimately, as practicing professionals.

Therefore, the following research hypotheses are proposed:

Hypothesis 1 There is a positive relationship between student grades in practical examinations and triple jumps.

Hypothesis 2 There is a positive relationship between student grades in practical examinations and tutorials.

Hypothesis 3 There is a positive relationship between student grades in practical examinations and written examinations.

Ancilliary Hypotheses:

Hypothesis 4 There is a positive relationship between student grades in triple jumps and tutorials.

Hypothesis 5 There is a positive relationship between student grades in triple jumps and written examinations.

Hypothesis 6 There is a positive relationship between student grades in tutorials and written examinations.

CHAPTER THREE

METHODOLOGY

This section identifies the way in which the study was conducted, and the procedures and techniques employed to answer the research question. It will include discussions on population and sample, instrumentation and data collection, and data analysis.

3.1 Population and Sample

The sample was comprised of 1988 (n=22) and 1989 (n=23) graduates of the Occupational Therapy Mohawk College Diploma Program. The progam is offered in an English-speaking college, on the Chedoke campus, which is situated in Hamilton, Ontario. The students have been chosen from registrants of approximately 700 through a competitive admission process. The final ranking and selection is determined by averaging equally the four scores in the areas of academics, college tests, interview, and questionnaire. With respect to minimum academic requirements, the students all have an Ontario Secondary School Diploma with good standing in each of the following:

1. grade 11 and 12 English
2. two sciences (biology, chemistry, physics)
3. one mathematics in grade 11 or 12.

The college tests assess basic skills in literacy and problem-solving, the interview allows the faculty to observe the applicant's presentation skills, and the questionnaire allows for expression of thought in prose format. The students ranked in the top 28 positions are offerred enrollment.

Table 7 lists the specific characteristics of the 1988 and 1989 graduates.

The graduating-year students of these years were chosen as the sample because they experienced the most similar conditions in the examining procedure in the practical examination.

3.2 Instrumentation

The following is a description of the evaluation methods:

Practical Examinations

These examinations were developed by the occupational therapy faculty at Mohawk College from 1977 to 1980. Since that time, however, changes have been made to the evaluation methods based on ongoing feedback from faculty and students. The practical examinations are used as a summative method of evaluation to determine the students' competency in O.T. interviewing, assessment, and/or treatment skills. Appendices A-G outline the practical examination guidelines for the courses 403/403, 503/504, 603/604, 703/704, 803/804, and 903/904 respectively. The weighting varies from 30% to 50% of each of the total course marks. One half of the mark goes to the Occupational Therapy Techniques course and

Table 7: Characteristics of Graduates

	GRADUATES	
	1988 n=22	1989 n=23
CHARACTERISTICS		
Language Spoken	English	English
Age	20-33	20-32
Gender	20 females 2 males	20 females 3 males
Primary Residence	3 from Hamilton 19 from neigbouring cities in S. Ont.	3 from Hamilton 20 from neigbouring cities in S. Ont.
Citizenship	22 Canadians	23 Canadians
Educational Background;		
-secondary (completed degree)	22	23
-post-secondary (completed degree)	6	9
-taken post-secondary courses	11	9
Involvement in Community Volunteer Work (prior to entrance into Program)	20	19

the other one half goes to the corresponding Clinical Problem-Solving course. The types of tests included within the practical examinations are short answer, short essay test, oral test, checklist, and rating scale. The length of time required to complete the practical examinations varies from two hours to two days. Real or standardized patients are used. In 1987, a study done by Jung and Brdarevic measured inter-rater reliability in the practical examinations for the courses OC 503-504 and OC 803-804. The Pearson reliability co-efficient of the percentage mark of .95 was the same for the two courses, indicating a high reliability between the two raters. No other testing has been done on the practical examinations to measure validity and reliability. Table 8 identifies the salient features of individual practical examinations.

Triple Jumps

The triple jump is an individual student evaluation conducted in a three-part exercise. The objective is to be able to assess whether the student can demonstrate problem-solving skills (i. e., ability to formulate problems, generate hypotheses, identify and priorize learning issues, collect relevant data, and apply new knowledge) in order to develop an occupational therapy management plan. In Part One of the triple jump, the student receives a brief patient problem description from the evaluator. At this time the student identifies the main problems, asks for further information, and then formulates the problems

Table 8: Characteristics of Practical Examinations

	FEATURES			
	Weighting	Time to Complete	Test Type	Standardization testing
COURSE				
Year II				
OC 403-404	30%	2 hrs.	oral test rating scale checklist	no
OC 503-504	30%	2 hrs.	oral test rating scale short essay checklist	inter-rater reliability
OC 603-604	40%	2 days	rating scale short essay checklist	no
Year III				
OC 703-704	40%	2 days	oral test rating scale short essay checklist	no
OC 803-804	50%	2 hrs.	rating scale short essay checklist	inter-rater reliability
OC 903-904	50%	2 1/2 hrs.	oral test rating scale checklist	no

based on this additional information. The student then discusses the learning issues raised and how she/he plans to pursue these issues. This part should take 30 minutes per student to complete. In Part Two, the student implements the plan over a period of time ranging from one to three days. In Part Three, the student meets with the evaluator to discuss the process of the data search, describe the data collected, and formulate the problem again to include O. T. management plans. This part takes 30 minutes per student to complete. The evaluator assesses the student on the oral presentation totally and gives written feedback which includes comments and use rating scales. Appendix H is a sample of a triple jump evaluation form. Appendix I is a sample of a brief patient description which the student receives in Part One. The triple jump is used only in the Clinical Problem-Solving courses (OC404, OC504, OC604, OC704, OC904), and is weighted differently in each of the courses, ranging from 20%-25% in second year and ranging from 25%-30% in third year.

Tutorial evaluation

Student performance in tutorials or small group sessions (five to seven students per group per tutor) is assessed on an individual basis to determine the student's ability to function effectively as a group member and the group's ability to problem-solve as a whole. The tutor and the group members provide verbal and written feedback to each other, outlining areas of strengths

and weaknesses midway through the semester and at the end of the semester. Usually, however, feedback is given at least after every two to three sessions. Each group decides how the final grade will be arrived at, but it is understood that the tutor will have to agree to the final decision. The student is evaluated on behaviour demonstrated during the sessions only, and written and verbal feedback is given. The written feedback includes checklists, rating scales, and comments. Appendix J is a sample of an evaluation form used. The tutorial evaluation is used only in the Clinical Problem-Solving courses (OC 404, OC504, OC604, OC704, OC804, OC904) and is weighted differently in each of the courses, ranging from 20%-25% in the second year and ranging from 8%-20% in the third year.

Written examinations

This evaluation tool is used only in the Occupational Therapy Techniques courses (OC403, OC 503, OC 603, OC 703, OC 803, OC 903) and employs short answer, short-essay, and essay-type tests to assess knowledge. The weighting varies in each course, ranging from 15%-35%.

Table 9 presents a matrix of the cognitive levels of learning by each of the evaluation tools used in this study. Tables 10 and 11, respectively, present matrices of the affective and psychomotor levels of learning by each of the evaluation tools used. The "Yes" designation indicates that that

tool is used for the level of learning and the "No" designation indicates that that tool is not used for the level of learning.

3.3 Data Collection

Permission was granted to access and use the data for this study from the Mohawk College registrar. The data needed were stored in the registrar's office and in the O.T. department's instructor's files. The collection process involved personal retrieval of the data through the documents. The 1988 and 1989 graduates were informed that a study would be undertaken to examine the relationship of their academic performance with a variety of evaluation methods, the results of which would be available to them through the Mohawk College O.T. Program.

Student grades in the practical examinations, tutorials, written examinations, and triple jumps were accessed for the following O.T.T. and C.P.S. courses:

Year 2 -OC 403/404	Year 3 -OC 703/704
-OC 503/504	-OC 803/804
-OC 603/604	-OC 903/904

Mohawk College employs a descriptive word grade system for the assessment of a students' academic achievement. The O.T. department uses the five-point system, 0 (<50%), Incomplete (50%-59%), 2 (60%-69%), 3 (70%-79%), 4 (>80%), to record the students'

Table 9: Appropriateness of Occupational Therapy Evaluation Tools in the Cognitive Domain

	TYPE OF EVALUATION TOOL			
	Practical Examination	Triple Jump	Tutorial	Written Examination
LEVELS OF DOMAIN				
Knowledge	Yes	Yes	Yes	Yes
Comprehension	Yes	Yes	Yes	Yes
Application	Yes	Yes	Yes	Yes
Analysis	Yes	Yes	Yes	Yes
Synthesis	Yes	Yes	Yes	Yes
Evaluation	Yes	Yes	Yes	Yes

Table 10: Appropriateness of Occupational Therapy Evaluation Tools in the Affective Domain

	TYPE OF EVALUATION TOOL			
	Practical Examination	Triple Jump	Tutorial	Written Examination
LEVELS OF DOMAIN				
Receiving	Yes	Yes	Yes	Yes
Responding	Yes	Yes	Yes	Yes
Valuing	Yes	Yes	Yes	No
Organization	Yes	Yes	Yes	No
Value Complex	Yes	Yes	Yes	No

Table 11: Appropriateness of Occupational Therapy Evaluation Tools in the Psychomotor Domain

	TYPE OF EVALUATION TOOL			
	Practical Examination	Triple Jump	Tutorial	Written Examination
LEVEL OF DOMAIN				
Perception	Yes	No	Yes	No
Set	Yes	No	Yes	No
Guided Response	Yes	No	Yes	No
Mechanism	Yes	No	Yes	No
Complex Overt Response	Yes	No	Yes	No
Adaption	Yes	No	Yes	No
Origination	Yes	No	Yes	No

grade in a course. The individual grade obtained in each of the evaluation components is calculated as a percentage and will be used as such in the study.

3.4 Data Analysis

The data were entered into a microcomputer and descriptive statistics were calculated. These included means, medians, standard deviations, and correlations. A correlation matrix of Pearson Product Moment Correlation co-efficients was produced on the four grade-items in the second and third year O.T.T. and C.P.S. courses of the 1988 and 1989 graduates. In order to determine the contribution of the variables, a stepwise regression analysis was performed.

CHAPTER FOUR

RESULTS

The descriptive statistics, minimum grade, maximum grade, mean, median, and standard deviation, for the 1988 and 1989 graduates' performance in the practical examination, triple jump, tutorial, and written exam for the respective courses, 403/404, 503/504, 603/604, 703/704, 803/804, and 903/904 are shown in Tables 12 through 15.

The correlation matrices for the 1988 and 1989 graduates performance in the practical examination, triple jump, tutorial and written exam for the respective courses, 403/404, 503/504, 603/604, 703/704, 803/804, and 903/904 are shown in Tables 16 through 21.

In the course 403/404 in Table 16, a significant correlation exists between the 1988 grades for the practical examination and the tutorial ($r=.464$, $p<.025$) and for the triple jump and tutorial ($r=.426$, $p<.025$). This is true also for the 1989 grades for the practical examination and triple jump ($r=.444$, $p<.025$).

In the course 503/504 in Table 17, a significant correlation exists between the 1988 grades for the practical examination and the tutorial ($r=.448$, $p<.025$), the triple jump and tutorial ($r=.732$, $p<.0005$), the triple jump and written

Table 12: Descriptive statistics for the courses 403/404, 503/504, and 603/604 for the 1988 graduates

	DESCRIPTIVE STATISTICS				
	Min	Max	Mean	Median	Standard Deviation
403/404 (N=25) Practical Exam	58.0	82.0	67.22	68.0	6.08
Triple Jump	60.0	93.0	77.63	80.0	10.0
Tutorial	64.0	89.6	79.84	82.0	7.27
Written Exam	53.0	80.0	70.82	70.0	7.17
503/504 (N=25) Practical Exam	53.3	86.8	71.1	73.0	8.0
Triple Jump	60.0	98.0	83.7	86.0	9.41
Tutorial	62.5	91.8	82.0	83.0	6.5
Written Exam	51.9	84.0	65.34	65.7	7.74
603/604 (N=25) Practical Exam	61.3	93.8	78.49	77.5	7.51
Triple Junp	67.0	96.0	78.6	80.0	7.78
Tutorial	65.0	90.0	80.71	82.5	6.08
Writtem Exam	**N/A**	**N/A**	**N/A**	**N/A**	**N/A**

N/A- Not available

Table 13: Descriptive statistics for the courses 703/704, 803/804, and 903/904 for the 1988 graduates

	DESCRIPTIVE STATISTICS				
	Min	Max	Mean	Median	Standard Deviation
703/704 (N=25) Practical Exam	41.9	90.0	72.98	74.3	10.95
Triple Jump	62.5	92.5	78.62	77.5	9.55
Tutorial	67.5	90.0	81.61	85.0	6.47
Written Exam	30.5	89.5	60.54	57.7	14.9
803/804 (N=24) Practical Exam	55.5	82.7	70.29	69.3	7.36
Triple Jump	N/A	N/A	N/A	N/A	N/A
Tutorial	N/A	N/A	N/A	N/A	N/A
Writtem Exam	70.0	83.3	74.71	73.3	4.04
903/904 (N=23) Practical Exam	60.0	85.0	72.13	72.0	5.9
Triple Jump	60.0	88.3	76.38	76.7	8.02
Tutorial	68.8	100.0	87.13	87.5	7.50
Written Exam	N/A	N/A	N/A	N/A	N/A

N/A- Not available

Table 14: Descriptive statistics for the courses 403/404, 503/504, and 603/604 for the 1989 graduates

	DESCRIPTIVE STATISTICS				
	Min	Max	Mean	Median	Standard Deviation
403/404 (N=25)					
Practical Exam	33.3	82.0	66.89	67.0	9.44
Triple Jump	64.0	96.0	78.74	82.0	9.87
Tutorial	74.0	92.0	85.71	86.0	4.66
Written Exam	68.0	100.0	84.51	85.0	8.65
503/504 (N=23)					
Practical Exam	00.0	85.5	68.33	71.5	16.55
Triple Jump	64.8	99.2	83.25	84.0	10.59
Tutorial	78.7	94.3	86.93	87.5	4.04
Written Exam	45.9	78.2	66.39	69.6	8.79
603/604 (N=22)					
Practical Exam	65.0	91.3	77.95	76.5	8.42
Triple Jump	64.0	91.0	79.18	78.5	7.22
Tutorial	71.3	95.3	86.60	87.50	5.16
Written Exam	57.6	91.3	71.55	72.05	8.88

Table 15: Descriptive statistics for the courses 703/704, 803/804, and 903/904 for the 1989 graduates

	DESCRIPTIVE STATISTICS				
	Min	Max	Mean	Median	Standard Deviation
703/704 (N=23)					
Practical Exam	45.0	89.4	70.45	71.3	9.88
Triple Jump	69.0	88.0	80.19	79.0	4.60
Tutorial	85.0	95.0	89.98	90.0	2.84
Written Exam	32.1	82.1	63.55	62.5	13.30
803/804 (N=23)					
Practical Exam	37.8	86.3	70.92	72.0	11.20
Triple Jump (N/U)	N/A	N/A	N/A	N/A	N/A
Tutorial	70.0	90.0	81.63	80.0	5.36
Written Exam	32.5	88.0	73.43	76.5	10.88
903/904 (N=23)					
Practical Exam	45.0	88.0	72.43	73.6	10.35
Triple Jump	80.0	96.7	85.46	85.00	5.14
Tutorial	80.0	100.0	93.33	93.70	7.72
Written Exam	45.0	92.0	73.54	73.0	9.41

N/U- Evaluation method not used in this course
N/A- Not available

Table 16: Correlation co-efficients of 1988 (n=24) and 1989 (n=25) graduates performance in the course 403/404

	EVALUATION METHODS			
	Practical Exam (1988/1989)	Triple Jump (1988/1989)	Tutorial (1988/1989)	Written Exam (1988/1989)
Practical Exam		0.344 0.444*	0.464* -0.221	0.386 0.248
Triple Jump			0.426* 0.190	0.178 0.328
Tutorial				-0.237 0.227
Written Exam				

* -p<.025

Table 17: Correlation co-efficients of the 1988 (n=25) and 1989 (n=23) graduates performance in the course 503/504

	EVALUATION METHODS			
	Practical Exam (1988/1989)	Triple Jump (1988/1989)	Tutorial (1988/1989)	Written Exam (1988/1989)
Practical Exam		0.386 0.301	0.448* 0.337	0.257 -0.094
Triple Jump			0.732*** 0.394	0.509* 0.251
Tutorial				0.479* 0.221
Written Exam				

* -p< .025
*** -p< .0005

Table 18: Correlation co-efficients of the 1988 (n=25) and 1989 (n=22) graduates performance in the course 603/604

	EVALUATION METHODS			
	Practical Exam (1988/1989)	Triple Jump (1988/1989)	Tutorial (1988/1989)	Written Exam (1988/1989)
Practical Exam		0.353 0.055	0.323 -0.049	N/A 0.440*
Triple Jump			0.572** 0.259	N/A 0.327
Tutorial				N/A 0.256
Written Exam				

* -p<.025
** -p<.005
N/A -Data not accessible

Table 19: Correlation co-efficients of the 1988 (n=25) and 1989 (n=23) graduates performance in the course 703/704

	EVALUATION METHODS			
	Practical Exam (1988/1989)	Triple Jump (1988/1989)	Tutorial (1988/1989)	Written Exam (1988/1989)
Practical Exam		0.415 0.391	0.616** 0.231	0.093 0.326
Triple Jump			0.720*** 0.242	0.628** -0.057
Tutorial				0.256 0.347
Written Exam				

** -p< .005
*** -p< .0005

Table 20: Correlation co-efficients of the 1988 (n=24) and 1989 (n=23) graduates performance in the course 803/804

	EVALUATION METHODS			
	Practical Exam (1988/1989)	Triple Jump (N/U) (1988/1989)	Tutorial (1988/1989)	Written Exam (1988/1989)
Practical Exam		N/A N/A	N/A 0.252	0.294 0.015
Triple Jump (N/U)			N/A N/A	N/A N/A
Tutorial				N/A 0.197
Written Exam				

N/A -Data not accessible or available
N/U -Evaluation method not used in this course

Table 21: Correlation co-efficients of the 1988 (n=23) and 1989 (n=23) graduates performance in the course 903/904

	EVALUATION METHODS			
	Practical Exam (1988/1989)	Triple Jump (1988/1989)	Tutorial (1988/1989)	Written Exam (1988/1989)
Practical Exam		0.175 0.309	0.461* 0.118	N/A 0.095
Triple Jump			0.616** 0.635**	N/A -0.175
Tutorial				N/A -0.129
Written Exam				

* -p< .025
** -p< .005
N/A -Data not accessible

($r=.509$, $p<.025$) and the tutorial and written examination ($r=.479$, $p<.025$).

In the course 603/604 in Table 18, a significant correlation exists between the 1988 grades for the triple jump and tutorial ($r=.572$, $p<.005$) and for the 1989 grades for the practical examination and written examination ($r=.440$, $p<.025$). Unfortunately, this researcher was unable to retrieve the raw data for the 1988 written examination grades from the instructor. She had travelled overseas for a two-year sabbatical and could not access this information for this researcher.

In the course 703/704 in Table 19, a significant correlation exists between the 1988 grades for the practical examination and tutorial ($r=.616$, $p<.005$), the triple jump and tutorial ($r=.720$, $p<.0005$) and the triple jump and written examination ($r=.628$, $p<.005$). It is interesting that most of the significant correlations have occurred for the 1988 grades and not for the 1989 grades.

The data retrieval for the course 803/804 was disappointing. The triple jump is not an evaluation method used in this course and therefore would naturally not be available. However, during the period when data were being gathered for the 1988 tutorial grades, the O.T. department was undergoing major renovations and this information was lost during the process. The data in Table 20 does not appear to yield significant correlations.

In the course 903/904 in Table 21, a significant correlation exists between the 1988 grades for the practical examination

and tutorial ($r=.461$, $p<.025$), the triple jump and tutorial ($r=.616$, $p<.005$) and between the 1989 grades for the triple jump and tutorial ($r=.635$, $p<.005$). Also in this course, the 1988 grades for the written examination were lost in the renovation process.

The pattern appeared at this point to indicate significant correlations between the grades in the practical examination and the tutorial and in the triple jump and the tutorial. Three out of the six courses had incomplete data and, therefore, it was difficult to analyze this pattern throughout the six courses. Correlation co-efficients were calculated for the 1988 and 1989 graduates' performance in the practical examination, triple jump, tutorial and written examination for the courses that had the complete data. These are the courses 403/404, 503/504, and 703/704. The correlation matrix is shown in Table 22.

The highest correlation exists between the triple jump and tutorial grades ($r=.419$, $p<.0005$), and the lowest exists between the practical examination and written examination grades ($r=.064$). Correlations appear to be low for the grades in the practical examination and triple jump ($r=.296$, $p<.005$), the practical examination and tutorial ($r=.212$, $p<.01$), the written examination and triple jump ($r=.191$, $p<.05$), and the written examination and tutorial ($r=.142$, $p<.05$).

The stepwise regression analysis performed on the three

Table 22: Correlation co-efficients of 1988 and 1989 (n=173) graduates performance in the courses 403/404, 503/504, and 703/704

	EVALUATION METHODS			
	Practical Exam	Triple Jump	Tutorial	Written Exam
Practical Exam		0.296**	0.212	0.064
Triple Jump			0.419***	0.191
Tutorial				0.142
Written Exam				

** -p<.005
*** -p<.0005

variables (i. e., the triple jump, tutorial, and written examination) did not contribute different results from the results of the analysis done. One-step analysis was performed using the triple jump. This was done because the correlation between the triple jump and tutorial was moderate to high indicating that the tutorial was not needed to be analyzed in to predict student practical examination performance. The written examination had such low correlations with the practical examination that it was not considered a variable that would enhance prediction on student performance on the practical examination. The stepwise regression analysis (n=285) resulted in $R^2=.301$ with $p<.005$ for the triple jump. Therefore, it is considered the best predictor out of the other variables for approximately 30% of variance of the practical examination scores.

CHAPTER FIVE

DISCUSSION

Hypothesis 1: There is a positive relationship between student grades in practical examinations and triple jumps.

The results do not seem to indicate a strong positive correlation between these two evaluation components. The highest correlation exists for the 1989 grades for the course 403/404 ($r=.444$, $p<.025$). When correlating the grades from the three courses with the complete data for the two graduate years, the results indicate a low correlation ($r=.296$, $p<.005$). This may not be too surprising given some of the differences in these two evaluation methods. The practical examination assesses aspects of the cognitive, affective, and psychomotor domains. The focus is on what the student can do given a standardized or real patient. The grades tend to weight heavily towards the psychomotor components. The student must think through the specific problems encountered and act accordingly in a relatively short period of time. The triple jump, although it is also case specific, does not focus on what the student can do. The student must communicate orally to the examiner, however, he/she does not need to be concerned with skills necessary in the actual physical management of a patient. The triple jump

assesses aspects primarily of the cognitive and affective domains in particular components such as clinical reasoning, critical thinking, problem solving, self-directed learning, and self-evaluation. The difference in the psychomotor demands is quite significant in that the practical examination was developed to assess clinical skills with patients, whereas the triple jump was designed to assess how a student would work through a hypothetical "paper" case history. Both evaluation methods do assess clinial reasoning, critical thinking, and problem-solving skills; however, the formats in which they are expected to be demonstrated are different.

The evaluators are different for these two components. This fact is significant in that the training process is less stringent for those learning to administer the triple jump. The success of the triple jump depends mainly on the expertise of the evaluators (McMaster, 1987). The tutor of each group is reponsible for the development of the case histories and for implementing the procedure. The training sessions are less structured than the practical examinations, whereby the type and quality of the sessions are decided by the course co-ordinator.

Hypothesis 2: There is a positive relationship between student grades in practical examinations and tutorials.

The significant correlations between the evaluation components for the 1988 graduates ranged from .448 ($p<.025$)

to .616 ($p<.005$). These indicate a moderately positive correlation for this year of graduates. The results from the 1989 graduates' correlations, though, show quite a range of low correlations at -0.221, .337, -0.049, .231, .252, and .118. These results do not however, reach levels of significance. This inconsistency in the 1989 graduates' year leads this researcher to consider factors that may contribute to this. One reason can be that the tutors are trained differently between the two years. The tutor must know the program and course objectives, function in the role of the tutor to facilitate individual and group learning, and be able to obtain and document evidence that describes how individual and group learning occurs. Usually, potential tutors are required to attend a three-day workshop before they take on this role. This does not always happen. Also, the workshop is designed to provide training to educators from a variety of backgrounds and does not address specific issues related to the Occupational Therapy Program. Again, as in the triple jump training sessions, the type of follow-up training is dependent on the judgement of the course co-ordinator. Another reason may be that the tutors for each course from year to year will vary. Because most tutors are clinical therapists from the community, they usually cannot commit to more than one course at a time. A third reason may be that aspects of student performance are weighted by the course co-ordinators differently from course to course. The actual evaluation form with the subskills listed remain the same for

all of the courses; however, the grade weighting of each of the section changes. More weighting is given to the problem-solving skills and less weighting is given to the group dynamic skills as the students move from second to third year. Therefore, the focus of what is evaluated shifts from second to third year. All these variables can influence the results of correlations in these evaluation components.

The tutorial is designed to assess the individual student's ability to function effectively as a group member and the group's ability to problem solve as a team. It assesses aspects of the cognitive, affective, and psychomotor domain. The focus in the tutorial, however, is primarily on the cognitive and affective domains and the focus in the practical examination is on the psychomotor domain. The student performance in the tutorial is evaluated by both the tutor and peer group members over a period of approximately two months. The method is used for summative and formative purposes and there are opportunities for growth and development of skills during all the tutorial sessions. The practical examination is used as a summative method of evaluation and subsequent evaluated opportunities for growth and skills development do not occur. The practical examination would be an excellent tool to help direct student learning; however, the high use of resources has made this difficult to encorporate into the courses more than one time. In the tutorial, the students work through a series of "paper" case histories that

may or may not have standardized patients available. Only limited clinical skills are practiced. The process is done as a group even though each student will receive individual evaluations. The similarity in these two evaluation methods is that they both assess clinical reasoning and problem solving. The correlation for the data for the two graduate years in the courses with the complete data is 0.212 ($p<.025$). The low correlations from the 1989 graduates year may have skewed the results.

Hypothesis 3: There is a positive correlation between student grades in practical examinations and written examinations.

The correlation coefficients for the 1988 graduates between these evaluation methods ranged from .064 to .384, and for the 1989 graduates from -.094 to .440 ($p<.025$). This indicates a low to moderate correlation. The correlation for the two years for the courses with the complete data is .064. This tendency toward the low range is not surprising given that the the written examination assesses primarily the cognitive domain using short answer, short essay, and essay type tests. Cranton (1989) identified that although paper and pencil techniques may be used in a learning situation that is predominately psychomotor in nature, they should only be used to assess the overlap with the cognitive and affective domains. Observation of the student performance or the product of the performance is the only appropriate evaluation technique. Stratford and Pierce-Fenn (1985)

felt that the generalizablity of student performance is directly related to the the number of items sampled per unit of evaluation time. As the number items on a test increases, so does the generalizability. The evaluator of the practical examination uses observation of the student performance to assess aspects of the psychomotor domain. Some of the practical examinations encorporate a written component which requires the student to analyze and/or synthesize her/his own performance. Usually, this component represents a small percentage of the overall grade for the practical examination and is used primarily to determine how well the student critiques the process and content.

Hypothesis 4: There is a positive relationship between student grades in triple jumps and tutorials.

The correlations between these evaluation components for the 1988 graduates appear to indicate a positive relationship in the moderate range with the results reaching levels of significance at .426 ($p<.025$), .732 ($p<.0005$), .572 ($p<.005$), .720 ($p<.0005$), and .616 ($p<.005$). The significant correlation for the 1989 graduates is for one course at .630 ($p<.005$). The other correlations ranged from .190 to .394. The correlation for the two years with the complete data is .419 ($p<.0005$). There appears to be the highest correlation between these two evaluation components albeit at a moderate range. Both the triple jump and tutorial assess the cognitive and affective domains primarily. The students work through the hypothetical

patient case histories using similar procedures whereby they generate hypothesis, gather appropriate data, formulate problems, describe learning issues, and outline the plan to meet those learning issues. Following an independent data search, the students return to synthesize the information. For this reason, the tutorial sessions, in essence, prepare the students for the triple jump. The triple jump is usually conducted in the middle of the course. The student would have had opportunities to practice these skills within the tutorial and would have received feedback from the tutor and other group members on the effectiveness of these skills. Also, the tutor evaluates the student in the tutorial and in the triple jump. Although the tutor should be objective in all evaluations, bias may be an issue of which to be aware. The major difference in these two evaluation methods is that the tutorial is conducted in a group situation over a period of time. As stated earlier, evaluated opportunities for growth and development can occur. On the other hand, the triple jump is conducted individually between the evaluator and student and is done once only throughout the course.

Hypothesis 5: There is a positive relationship between grades in triple jumps and written examinations.

The correlations for these two evaluation components for the 1988 graduates year are .178, .509 ($p<.025$), and .628 ($p<.005$). Three correlations were not available. Two of the correlations

available appear to be in the moderate range. The correlations for the 1989 graduates are in the low range from -.057 to .327. These do not reach levels of significance. The correlation for the three courses that had the complete data is .191 ($p<.05$). As stated earlier, the triple jump assesses aspects primarily of the cognitive and affective domains and the written examination assesses aspects primarily of the cognitive domain. The student does not have to depend on immediate recall or retrieval of information to do well. The three-step process spread out over a period of one to three days, gives the student opportunities to explore the patient case history with the evaluator and independently If the student does poorly in step one, she/he can identify the weaknesses and improve in steps two and three. Generally speaking, most students pass the triple jump (60%) because there are built in opportunities for the students to learn as well as to be evaluated during the process. The students must present what their knowledge base is in the written examination and must do so in a short period of time (two to three hours). The written examinations tends to be used for summative purposes and does not lend itself to learning during the process as much as the triple jump does. The minimum grades for the written examinations are generally lower than the triple jumps. The maximum grades appear to be in the similar range. The potential for performing poorly is higher in the written examination than the triple jump based on the ranges.

Hypothesis 6: There is a positive correlation between student grades in tutorials and written examinations.

The correlations between these two evaluation components for the 1988 graduates' year are -.237, .256, and .479 ($p<.025$). Three correlations are not available. The correlations for the 1989 graduates' year range from -.129 to .347. These do not reach levels of significance. The correlation for the courses with the complete data is .142 ($p<.05$). These low correlations are not surprising given the nature of these evaluation methods. As discussed earlier, the tutorials assess aspects of the cognitive and affective domains over a period of about eight weeks. The process allows for both formative and summative evaluation. The written examinations are used for summative purposes and are usually conducted during the last week of the courses.

In reviewing all of the statistical analysis, it appears that the highest correlations are between the triple jumps and the tutorials, and the lowest correlations are between the practical examinations and written examinations. It appears, however, at best, the correlations are in the moderate range. Therefore, in reference to the research question;-are the grades achieved in the practical examination significantly related to grades achieved in the other course evaluation components, specifically, the written examination, tutorial, and triple jump?- the response would be that there exists some significant correlations. The fact that the correlations are low indicates that the evaluation methods may be measuring different aspects of student performance. The practical examination assesses clinical skills

at the psychomotor level primarily, whereas the other three components assess skills at the cognitive and affective levels primarily. These findings support the studies by Rheault and Shafernich-Coulson (1988); Musher, Williams, and Chesnut (1987); Norcini, Webster, and Grosso (1987); and Lazar (1980) which indicated that academic and clinical grades are not highly correlated. These studies suggested that each evaluation process contributes different kinds of information regarding student knowledge and competence. This study appears to support that suggestion. With this in mind, the concern raised by Mohawk College O.T. students and faculty that the grades achieved in the practical examinations do not correspond to the grades achieved in the other course components, may not be an issue. If the evaluation methods are to measure different aspects of student performance, the grades may not have to correspond highly with the grades achieved in the other course components to be effective evaluation methods.

The practical examination, in its original design, was to measure higher levels of learning within the cognitive, affective, and psychomotor domains. It is a process evaluation using real or standardized patients. The test types include oral test, rating scale, checklist, and short essay. The opportunities exist to measure most levels of complex student learning. In the cognitive domain, data analysis and synthesis are demonstrated by the development of a comprehensive patient management plan. The student must be constantly evaluating the process of the activity and of

his/her self-performance. Learning in the affective domain is more difficult to measure in the practical examination. This can only be measured by observing student performance. Receiving, responding, and valuing may be observed through skills such as demonstrating respect, concern, and empathy for the patient; conveying a genuineness and openness in interection with patient; and establishing and maintaining rapport with the patient. Measuring organization and characterization of a value will require other test techniques such as use of attitude scales, questionnaires, and further discussion, and interviews. These test techniques are not presently built into the practical examinations. In the psychomotor domain, the student needs to access skills of complex overt response, adaptation, and origination. Upon encountering a patient, the student must apply the skills learned in the course into a larger context. For example, the student must assess the patient's physical and cognitive status to decide which transfer technique is most appropriate to use to move the patient from the wheelchair to the bed. Adaptation may occur when the student adjusts the manual muscle testing skill to accommodate for the patient's pain upon passive movement. Subsequently, the student will develop a new way to perform the same task. He/she may ask the patient to lift a glass of water place it on the table. The student can determine the patient's and functional strength in the arm by observing how well the patient completes the task without manually touching the muscle

being tested. Also, this task will let the student know how well the patient can hear, comprehend, and follow directions.

The practical examinations can assess complex student learning. Patients are chosen with this in consideration. The difficulty in this process is that each student will have different experiences to deal with and some may have to use the higher taxonomy levels more than others. For example, the student may have to contend with patients who are unco-operative, are pulled away for unscheduled tests and becomes ill during the examination. Some situations will require intervention by the evaluator; however, the stress involved in "starting again" can impact on the ultimate performance. The students are aware that these situations will occur in "real" life and that the individual strategies that they must use in the practical examination are part of the overall learning experience.

CHAPTER SIX

CONCLUSION

This study was undertaken to explore the relationship between the practical examination and other course evaluation methods, specifically, the triple jump, tutorial, and written examination, in response to concerns raised by students and faculty at the Occupational Therapy Mohawk College Diploma Program. The practical examination was designed to evaluate clinical skills to ensure that the students were able to demonstrate basic competencies prior to beginning their clinical placements. In the literature review, studies correlating academic and clinical grades tended to indicate that they may not be highly correlated because each evaluation process contributes different kinds of information regarding student knowledge, skills, and attitude.

Six hypotheses were generated stating a positive relationship between the four evaluation methods. The sample comprised of 1988 and 1989 graduates of the O.T. Mohawk College Diploma Program. A correlation matrix was produced of the Pearson Product Moment Correlation Co-efficients on the four evaluation methods in the second and third year Occupational Therapy Technique and Clinical Problem-Solving courses of the 1988 and 1989 graduates. In order to examine the contribution of all the variables taken together, a stepwise regression analysis was performed.

The results showed that the highest correlations existed between the triple jump and tutorial grades and the lowest correlations existed between the practical examination and written examination. The correlations overall, though, were only low to moderate at best which indicates that the evaluation methods may be measuring different aspects of student learning. This conclusion supports the studies researched in the literature review. Based on this study, this researcher cannot conclude that the practical examination evaluates complex student learning, although it was designed to measure learning in the higher levels of the cognitive, affective, and psychomotor domains. Further research would have to be initiated to explore this more thoroughly.

One major difficulty arose during the process of this study which impacted on the results and which was not originally anticipated. There were courses that had incomplete data because they were not available. The raw data were kept by the individual instuctors instead of being kept in a master file. This resulted in a lengthy retrieval process, the success of which was directly related to whether or not the individual instructors stored the data and how well they stored them.

The implications and significance of this study is that it will assist the Occupational Therapy faculty at Mohawk College in defining what the various evaluation methods presently used measure. This will in turn promote more critical input in curriculum development for the remaining years of the program. The Occupational

Therapy Mohawk College Diploma Program will gradually be phased out in 1989, and the Occupational Therapy McMaster University Program will be phased in in 1990. The new McMaster Program is a two-year baccalaureate program which is open to applicants who have completed or are in the process of completing a baccalaureate degree or its equivalent. The rationale for this format is basically to develop an accelerated and condensed program to meet the serious manpower shortages of trained professionals across Canada. In making the new program shorter, it is important to design a curriculum which uses instructional and evaluational strategies most effectively. The results of this study may assist those developing the curriculum to transfer and to utilize the most appropriate evaluation methods from the Mohawk College Occupational Therapy Diploma Program to the McMaster University Occupational Therapy Program.

The following questions arose from this study which require further exploration. The answers to these questions may contribute to the knowledge base on which to make decisions concerning evaluation of student learning:

1) How valid and reliable are the evaluation instruments presently being used in the O.T. Mohawk College Diploma Program?
2) What correlation exists between the students' grades in the practical examinations and the students' grades in the clinical placements? What is the predictive validity of the practical examination?

3) Does the practical examination measure student learning in the higher and more complex levels of the cognitive, affective, and psychomotor domains?

3) Is there a difference in student performance when interacting with a real patient versus interacting with a standardized patient?

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CURRICULUM OVERVIEW

	Sem. 1	Sem. 2	Sem. 3
YEAR 1	Behavioural Sciences 1	Behavioural Sciences 2	Understanding Abnormal Behaviour
	Life Sciences 1	Life Sciences 2	Man and Leisure
	Physics 1	Physics 2	Man and Work
	Mathematics 1	Mathematics 2	O.T. Techniques (Kinesiology and Physical Assessment)
	Communication Skills (Language Studies 1)	Literature and the Arts (Language Studies 2)	Introduction to Problem Solving
	Introduction to O.T.	Creative Media	Interviewing
	Human Biology 1	Human Biology 2	Human Growth, Aging and Development
	Critical Appraisal of Literature	Critical Appraisal of Literature	Human Biology 3 and 4
	Sem. 4	**Sem. 5**	**Sem. 6**
YEAR 2	Introduction to Psychiatry	Pathology	Anthropology
	Clinical Problem Solving - Pediatrics	Canadian Society	Life Skills
	O.T. Techniques - Pediatrics	Work Simplification	Clinical Problem Solving - Gerontology
	Introduction to Clinical Practice	Clinical Problem Solving - Adult	O.T. Techniques - Gerontology
	Clinical Practice	O.T. Techniques - Adult	Clinical Practice
		Clinical Practice	
	Sem. 7	**Sem. 8**	**Sem. 9**
YEAR 3	Behavioural Sciences 3	Work Analysis	Management and Organizations
	Clinical Problem Solving - Rehabilitation	Management and Organizations	O.T. Integration
	O.T. Techniques - Rehabilitation - OC #703	Clinical Problem Solving - Psychiatry - OC #803	Clinical Problem Solving - Pediatrics - OC #903
	Clinical Practice	O.T. Techniques - Psychiatry	O.T. Techniques - Pediatrics
		Clinical Practice	Clinical Practice
	Sem. 10	**Sem. 11**	
YEAR 4		Electives 6 Units	
4A3	Theoretical Base of Practice		
4B4	Health, Science and Society		
4C3	Advanced Clinical Study 1		
4D3	Advanced Clinical Study 2		

NOTE: The 11th semester is only necessary for those students who have not previously completed their elective(s).

(Mohawk College Occupational Therapy Programme: Curriculum Manual, 1988)

Appendix B

ASSIGNMENT 5 - PRACTICAL EXAM OC 403-404

The practical exam is a two-part exercise which takes place within a two-hour period during the week of December 12.

It will be graded out of 50 marks which will constitute 30% of the final grade in both OT Techniques (OC403) and CPS (OC404) courses.

Evaluation will be based on the following format:

Part A - 25 marks
- students will normally work in pairs but may be required to work in solo
- each student or pair of students will complete an initial OT assessment of a child or adolescent with a disability who will be accompanied by his/her parent or parent substitute
- student(s) will have one hour to complete the assignment
- each student will be observed and evaluated by one evaluator using Part A of the clinical evaluation form

NOTE: The day before the practical exam, students will be informed of the child's diagnosis and age and any additional pertinent information to allow time for preparation of material/equipment needed for assessment.

Part B - 25 marks
- immediately following the assessment session each student will have 30 minutes to prepare an assessment report and treatment plan
- the student will have 15 minutes to present the report orally to the evaluator
- the evaluator will then have 15 minutes to question the student and provide feedback to the student on his/her performance
- the evaluator will grade the student's oral presentation using Part B of the clinical evaluation form

NOTE:
It is important to remember that parents and children have volunteered for this assessment in order to provide a learning experience for OT students. These children may be receiving treatment at the present time; therefore, discretion regarding questioning and offering suggestions must be used by the students.

ALL INFORMATION OBTAINED IS HIGHLY CONFIDENTIAL !!

* A schedule of practical exams will be posted by the end of November which will indicate pairing of students, names of evaluators, time, and location (eg M.U.M.C., CP Centre, etc.)

(Mohawk College Occupational Therapy Programme C.P.S. Level 2A, 1988)

ART A (U-UNSATISFACOTRY, S-SATISFACTORY, E-EXCELLENT)

PRACTICAL EXAMINATION EVALUATION FT (OC403) AND CPS (OC404)	PERFORMANCE U	S	E	COMMENTS	MAXIMUM SCORE	STUDENT'S SCORE
PREPARATION - choose appropriate equipment and prepare room using safety precautions						
- personal appearance					2	
I. INTERVIEWING TECHNIQUES - opens and closes session appropriately						
- elicits a complete description of problem areas						
- picks up cues (verbal and non-verbal)						
- facilitates response of child and parent					4	
II. PHYSICAL ASSESMENT TECHNIQUES - explores all areas indicated by the situation but avoids unnecessary features						
- performs techniques correctly and efficiently a) range of motion						
b) reflex testing						
c) assessment of muscle tone and power						
- modifies situation to suit patient's discomfort and disability					5	
IV. DEVELOPMENTAL ASSESSMENT TECHNQIUES - uses a framework and explores all areas						
- performs techniques correctly and efficiently a) basic senses						
b) fine motor						
c) gross motor						
d) personal-social/behaviour						
e) cognitive/perceptual language						
- modifies tasks to suit the child mentally and physically					7	
V. FUNCTIONAL ASSESSMENT TECHNIQUES - explores all areas verbally and takes advantage of direct opportunities to explore these further during the session						
- performs techniques correctly and efficiently a) dressing						
b) eating					3	
VI. INTERPERSONAL SKILLS - establishes and maintains rapport with parent and child						
- shows respect for child/parent, exhibits empathy and concern						
- communicates appropriately with child						
[illegible]						

ART B

AL REPORT	COMMENTS	MAXIMUM SCORE	STUDENT'S SCORE
I. PHYSICAL ASSESSMENT - to include fidings on reflex development, muscle tone, muscle power, range of motion, deformities - overall impression		5	
I. DEVELOPMENTAL ASSESSMENT - to include findings re basic senses, gross motor skills, fine motor skills, personal/social behaviour, cognitive and language development - overall developmental level		7	
II. FUNCTIONAL ASSESSMENT - report on all areas of self-care and general independence - overall impressions		3	
V. PROBLEM IDENTIFICATION - priorized summary of problems		3	
V. TREATMENT (GOALS AND TECHNIQUES) - description of treatment techniques and suggested activities in relation to treatment goals and problem ID		5	
VI. STYLE - professional language - appropriate terminology - organization - conciseness - completeness - clarity		2	
----------	----------T O T A L----------	25	

TOTAL PARTS A AND B

A: ____/25 B: ____/25 TOTAL: ____/50 GRADE: ____/30

50% TO CPS _____
50% TO OTT _____

DATE: _____

STUDENT: _____

EVALUATOR: _____

File: CPSOTTEVAL403p2

Appendix C

ASSESSMENT PRACTICAL EXAMINATION GUIDELINES OC 503-504

A simulated patient will be used for the practical exam. 20 minutes before you start the practical, a short case description will be given to you with a copy of the evaluation form.

You may take this form (marked with any notes you make during the preparation time) into the practical exam. You will also be given 3 blank sheets of paper for use during the practical. This is the only written material you may use during the practical session. You will have 40 minutes to do an initial assessment and will be given a 5 minute warning before the end.

You have one hour to write a chart note on this patient using the data gathered during the practical and using the SOAP charting format.

When you have completed this, you will meet with the evaluator(s) for 15 minutes for feedback on your practical session and will hand in your chart note. At this time you will give a 5 minute critique of your performance in the practical.

You will told if the practical component was at a passing level.

(Mohawk College Occupational Therapy Programme C.P.S. Level 2B, 1988)

O.T.T. & O.T.C.P.S. YEAR II - PRACTICAL EVALUATION

THROUGHOUT THE ASSESSMENT THE STUDENT WILL:

1. EXPLORE ALL AREAS INDICATED, BUT AVOID UNNECESSARY FEATURE
2. PERFORM TECHNIQUES CORRECTLY AND EFFICIENTLY
3. MODIFY ASSESSMENT TO SUIT THE PATIENT BOTH MENTALLY AND PHYSICALLY
4. USE FUNCTIONAL ASSESSMENT TECHNIQUES AS APPROPRIATE

DATA MAY INCLUDE INFORMATION FROM THE FOLLOWING AREAS:

		Performance Completed	Comments
PHYSICAL STATUS 1 2 3 4 5 6 7 8 9 10	-other systems involved (skin, C.V., resp., G.I., G.U.) -medications (compliance, side effects, education) -result of test procedures -involvement of other health care professionals MOTOR EVALUATION: -ROM -tone *-strength, endurance - including antigravity musceles -co-ordination REFLEXES, REACTION -postural -equilibrium -protective extension MOBILITY: *-transfers, safety -mobility -indoors -outdoors -distance -aids		
COGNITION MENTAL STATUS PSYCHOLOGICAL STATUS 1 2 3 4 5 6	*-attention -orientation, *-memory -judgment, insight reasoning -problem solving, abstract thinking -concentration, sequencing -reading, general fund of knowledge -overall psychological status (appearance, mood, affect, etc.)		
SENSORY AND PERCEPTUAL STATUS 0 1 2 3 4 5 6	BASIC SENSES: *-hearing *-vision -taste, smell -speech, communication (writing, reading, telephone) SENSATION: -pain, touch -temperature, pressure *-proprioception PERCEPTION: -stereognosis -body scheme -motor planning -visual spatial -visual field defects		
SOCIAL STATUS 3 4 5 6	-roles -job history/ vocation/interest -education -finances -social skills, relationships -leisure skills,		

SELF-MAINTAINENCE (SELF-CARE) 0 1 2 3 4 5 6 7 8 9 10 11 12	-bathing -dressing -eating -toileting -hygiene -grooming -exercise/relaxation -sex -management of environmental hardware (taps, lights, scissors)		
DISCHARGE PLANNING 0 1 2 3 4 5	-housing -invironmental barriers -household management (organization, meal planning, meal preparation, child management) -transportation (private, public)		
STUDENT CANNOT PASS PRACTICAL IF MARK IN THIS SECTION IS BELOW 6 (pass) *STARRED AREAS IN OTHER SECTION CONTRIBUTE TO SAFETY ASSESSMENT			
*SAFETY AND PREPARATION 0 1 2 3 4 5 6 7 8 9 10	-has appropriate appearance -prepares setting and uses appropriate patient safety precautions -demonstrates correct patient assistance and handling skills -adapts assessment program to individual patient -demonstrates appropriate use of equipment, tools and aids		
INTERVIEWING TECHNIQUES 2 3 4 5 6 7 8 9 10 11 12 13 14 15	-identifies self and purpose of visit -uses appropriate open-ended questions -uses good probing techniques -establishes and maintains rapport -listens to patient -respects patient (shows empathy and concern) -is aware of non-verbal communication -able to maintain control and refocus if necessary -projects confidence and professional manner -collects significant data efficiently -satisfactory closure of visit (recap plus identification of goals for future involvement)		

O.T.T. & C.P.S. YEAR II

Practical

PART II

	ORAL PRESENTATION	COMMENTS
1 5 10 20 25 30 35	Student will present a 15 minute summary of the important findings covering the following areas: 1. physical status 2. sensory/perceptual status 3. cognition-mental and psychological status 4. self maintenance 5. social status & discharge planning The presentation will also include identification of: - General treatment techniques for both short and long term goals Response to request for clarification on any of the above areas, after the presentation is finished.	
STYLE 1 5	-organization -format -presentation	

GUIDELINES FOR ASSESSMENT NOTE FOR PATIENT CHART

SUBJECTIVE DATA All this data is gathered from various sources including the patient, his family other h/c professionals chart, etc.	May include: name, age, diagnosis, date of admission, referring physician medical history including past admissions, complicating diagnoses, medications etc. social history including home, family, work, leisure, social supports, etc. functional history including ADL, meal preparation, cleaning, laundry, shopping transportation, mobility/gait Assistive Devices Used Patient complaints.
OBJECTIVE DATA All this data is by the therapist.	May include: general physical condition - tolerance, strength, tone, reflexes, tone contractures,pain, ROM, coordination sensation vision hearing functional activities, balance, gait, mobility, transfers, ADL, self-care, life skills
ANALYSIS This is an assessment of the problem and goals for Rx	(1) integration of subject and objective findings and their correlation (2) problem list - each problem numbered (3) goals
PLAN What you plan to do and how.	This includes your objectives tied into the problems listed in the analysis section. You may include here modalities to be used.

Appendix D

OTT AND CPS - PRACTICAL EXAM GUIDELINES AND TIME ALLOTMENT OC 603-604

1. 20 minutes before the start of the practical a short description will be given to the student (a real patient will be used for the exam).

2. 40 minutes will be allowed to do an initial assessment

3. 10 minutes for evaluator to mark practical

4. 10 minutes feedback to student. Student will be told if practical is a pass or a fail.

5. Student will have overnight to write a chart in S.O.A.P. format, using the form provided. This must be handed in to the school secretary by 10 a.m. the following morning.

NOTE: STUDENTS MUST WEAR SCHOOL UNIFORM

In case of a violation of a critical safety issue the practical will be terminated and the student will receive a failing grade.

If a series of issues contribute to a failing grade in the safety section of practical, the student will be informed of this after the practical. Inthis case feedback but no marks will be given for the S.O.A.P. format component.

(Mohawk College Occupational Therapy Programme C.P.S. Level 2C, 1988)

O.T. TECHNIQUES AND O.T. CLINICAL PROBLEM SOLVING

PRACTICAL EVALUATION

GERONTOLOGY

DATE: SAMPLE EVALUATION WITH COMMENTS FOR

STUDENT: EVALUATORS AND STUDENTS

EVALUATORS: _____

TOTAL: /40

	PERFORMANCE COMPLETED	COMMENTS
INTERVIEWING TECHNIQUES 1 2 3 4 5 6 7 8 9 10		
- identifies self and purpose of visit		-should relate O.T. role to areas of productivity (doing things for other people) as well as leisure (hobbies and interests) and not only self care
- uses appropriate open-ended questions		
- uses good probing techniques		
- establishes and maintains rapport		
- listens to patient *		-key area - must be aware of inuendos, feelings, etc - and not just relentlessly ask questions
- respects patient (shows empathy and concern)		
- is aware of non-verbal communication		
- able to maintain control and refocus if necessary		
- projects confidence and professional manner		
- collects significant data efficiently		
- satisfactory closure of visit (recap plus identification of goals for future involvement)		-important to recap findings and close - not reopen several times
*STUDENT CANNOT PASS PRACTICAL IF MARK IN THIS SECTION IS BELOW 3 (pass)		
SAFETY AND PREPARATION 1 2 3 4 5		-student must do no harm and consider pain, skin, joints, general fatigue, etc. -must be aware of baseline cognitive, sensory, and physical abilities before giving instructions to move about -antigravity muscle strength to assume and support standing (tib ant, quads, back extensors, plus triceps) -sitting balance must be established prior to transfer -in most cases at least standing and balance should be assessed + transer and walking if possibl
- has appropriate appearance		
- prepares setting and uses appropriate patient safety precautions		
- demonstrates correct patient assistance and handling skills		
- adapts assessment program to individual patient		
- demonstrates appropriate use of equipment, tools and aids		
*STARRED AREAS IN OTHER SECTIONS CONTRIBUTE TO SAFETY ASSESSMENT		
PHYSICAL STATUS 1 2 3 4 5		
- throughout the assessment the student explores all areas indicated, but avoids unnecessary features		-we have focused on -functional abilities vs specific muscle group action
- performs techniques correctly and efficiently		
- modifies tests to suit patient mentally and physically		
- significant data may include:		
PAST HISTORY: CHIEF COMPLAINT		-understanding of main problem "holding patient back"
- other systems involved (skin, C.V., resp., G.I., G.U.)		
- medications, (compliance, side effects, education)		-consider side effects and polypharmacolo
- involvement of other health care professionals		
MOTOR EVALUATION:		-can be done functionally - student must a patient to do various tasks to demonstra that they are persuing information
- ROM (Head, U.E., L.E., Trunk)		
* - antigravity mms		-passive ROM should be done after active is established (only if necessary/approp
* - strength, endurance		
- co-ordination		
- gross/fine motor		
- tone		

- hand function
- balance
- posture
- other limitations

test for protective extension, or have patient move outside base of support doing functional task

MOBILITY:

- transfers, safety
- mobility - indoors, outdoors
  - distance
  - aids

how does patient usually accomplish this? balance must be tested prior to transfer (see safety section) - transfer belt use has been taught

---

COGNITION, MENTAL STATUS, COMMUNICATION SKILLS

1 2 3 4 5

- attention span
- orientation (time, place, person)
- concentration, comprehension
- memory - recent/remote
- arithmetic, sequencing
- abstract reasoning, prob. solving
- judgement, decision making
- emotional state - behavior
- function - mental ability (positive, cognition)
- initiative, creativity
- coping mechanisms
- thought content, preoccupations
- depressive equivalents eg. weight, energy, eating, sleeping

relate to changes and losses in past as well as present, to establish pattern of coping

-? feeling of control - hope for future

INTER/INTRA PERSONAL SKILLS

- self expression
- communication
- ability to get along

SENSORY AND PERCEPTUAL STATUS

1 2 3 4 5

Throughout the assessment the student:

- explores all areas indicated but avoids unnecessary features
- performs techniques correctly and efficiently
- modifies to suit patient mentally and physically
- significant data may include:

BASIC SENSES:

- vision
- hearing
- taste, smell
- speech, communication (writing, reading, telephone)

SENSATION:

- pain, touch
- temperature, pressure → tactile
- proprioception

PERCEPTION:

- stereognosis
- body scheme/awareness
- motor planning/apraxia
- visual spatial awareness

-not necessary to test every area unless this is a major deficit for patient

-prioritize according to patient's ability

-can be tested functionally on initial interview - with suggestions for standardized testing in follow up session - if problem areas noted

SELF-MAINTENANCE (SELF-CARE)

1 2 3 4 5

ADL
- explores areas indicated verbally - takes advantage to explore these further during session
- dressing
- eating
- toileting
- bathing
- grooming

IADL
- telephone use
- shopping
- food preparation
- housekeeping
- laundry
- medications
- money management
- transportation

-some of these areas should be assessed functionally - which may also give information re motor skills, perception etc.

SOCIAL STATUS/ENVIRONMENT

1 2 3 4 5

- explores all areas indicated but avoids unnecessary features
- data may include:
  - roles
  - vocation/vocational interests
  - relationships/ partner/ children
  - finances
  - social skills, relationships
  - leisure skills, leisure interests
  - support systems/social network/confidante
  - effect of changes
  - discharge planning
  - type of environment and care needed

-past interests/pursuits will establish meaning of roles lost/maintained -as well as relationships lost/maintained

-is there one important person (confidante) in person's life

MOHAWK COLLEGE

OCCUPATIONAL THERAPY PROGRAM

CLINICAL PROBLEM SOLVING AND OT TECHNQIUES

PRACTICAL WRITE-UP

YEAR II, 1987, SUMMER

NAME: _____

DATE: _____ EVALUATOR: _____

MARKS:

S	/8	
O	/8	
A	/8	
P	/8	
-	/8	- Critique of Practical
	/40	TOTAL

PAGE 1 MARK /8

SSS
S
SSS
S
SSS Subjective Data

Include in this section all subjective data for this patient.

PAGE 2 MARK /8

Objective Data

Include, here, all objective data for this patient.

PAGE 3 MARK / 8

AAA
A A
AAA
A A
A A Analysis

Include here your interpretation of the previous two sections and identified problems specific to occupational therapy.

Appendix E

OC 703
OC704, FALL 1988

PRACTICUUM GUIDELINES

Dates: October 31 and November 1, 1988

Each student will be assigned to a local clinical facility, where the practical will take place, using a real patient.

1. You will be presented with:
   a) a patient case outline
   b) a treatment objective

2. Pick up your patient problem at 1:00 p.m. on October 28, 1988 from the Department Sectretary's desk.

3. Read through the Evaluation format - there are two parts - assessment information and treatment.

4. You will receive feedback and marks related to the practical component only. Papers will be given back to you by November 6, 1988 at OTT and CPS evaluations.

5. Treatment modalities are the student's responsibility. If you need equipment, contact the Clinical Instractor at the facility.

6. Written Treatment plans to include treatment goals and objectives. Maximum one page - in ink or typewritten format.

7. The name of the patient will be given at the time of the practical.

8. Because you will be evaluated using a real patient, problems may occur. Be prepared for minor changes due to unforeseen circumstances. If you are unable to complete the practical at the scheduled time because of clinical problems, a new practical will be scheduled. No credit will be given for the preparation already done.

9. Student must wear school uniform and name tag, and assume therapist role.

10. In the case of safety problem(s) with the patient, the practical will be terminated and no oral presentation will take place. The student will be assigned an "incomplete" grade in both courses (OTT and CPS) and must re-do and pass the practical in order to pass the courses. This will be arranged after the promotion meeting in Decemnber (see student policy manual re Incompletes).

(Mohawk College Occupational Therapy Programme C.P.S. Level 3A, 1988)

OC704, FALL 1988

PRACTICAL EXAMINATION GUIDELINES

Part A

Each student has been assigned to a clinical facility, where the practical will take place. Check schedule for details.

All students will receive their case problems and treatment management objectives at 1:00 p.m., October 28.

Students that are to be examined on November 1, will receive their case problem and treatment management objectives at 1:00 p.m., October 30.

Part B

A real patient will be made available to you. Each student will be required to carry out a treatment session, according to the assessment information that has been provided about the patient. Preparation time has been scheduled in order for each student to organize the treatment sesion. Ten minutes at the beginning of the session have been set aside for you to meet with the patient and clarify information you have been given. This 10 minute session will not be graded but will be supervised.

Time Breakdown

10 minutes	clarify assessment information (feedback only)
30 minutes	treatment (marks given)
15 minutes	oral justification - allow 5 minutes to prepare for oral student will state problem presented - discuss assessment findings - discuss decision for treatment management outlined - discuss treatment implementation

Student will then submit treatment management program and leave to allow evaluator to document feedback (20 minutes).

Part C

Student returns for feedback (15 minutes).

Evaluation

See evaluation form for details.

Note: Student must wear school uniform and name tag.

THIS INFORMATION IS PROVIDED BY THE THERAPIST WHO IS TREATING THE PATIENT

PATIENT INFORMATION FOR 3RD YEAR STUDENTS	OT PRACTICAL EXAM IN CLINICAL FACILITY
PATIENT'S NAME: MR MISS MRS	THERAPIST: COMMENTS:
PAST HISTORY: Chief Complaint or Diagnosis Other Systems Involved: skin cardiovascular GI GU medications OTHER HEALTH CARE PROFESSIONALS INVOLVED:	
MOTOR EVALUATION: ROM (active/passive) (include head, U/E, L/E, trunk) tone strength, endurance co-ordination	
REFLEX, REACTIONS: postural equilibrium protective extension balance primitive other MOBILITY: transfers (include safety) mobility indoors/outdoors distance aids used	

COGNITION, MENTAL STATUS:

- attention
- orientation, memory
- judgement, insight, reasoning
- problem solving, abstract thinking
- concentration
- reading
- general fund of knowledge
- overall psych. status including mood, appearance, affect
- thought content (preoccupations)
- coping mechanisms
- depressive equivalents e.g. eating, sleeping, weight, energy

SENSORY AND PERCEPTUAL STATUS:

Basic Senses:

- vision
- hearing
- taste, smell
- speech communication (writing, reading, telephone)

Sensation:

- pain touch
- temperature, pressure
- proprioception

PERCEPTION:

- stereognosis
- body scheme/awareness
- motor planning/apraxia
- visual spatial

SOCIAL STATUS/ENVIRONMENT:

- roles
- vocation/avocational interests
- relationships/partner/children
- finances
- social skills
- leisure skills
- support systems
- effect of changes
- discharge planning
- transportation

SELF MAINTENANCE:

- dressing
- eating
- toileting
- hygiene
- bathing
- grooming
- exercise/relaxation
- sex
- management of environmental hardware (e.g. taps, lights, scissors)
- adpating equipment

COMMENTS:

TREATMENT OBJECTIVE:

File: PT.INFO.OC704p2

TREATMENT EVALUATION FORM, OTT, OC704

INFORMATION CLARIFICATION SESSION (Time 10 minutes)			COMMENTS

OT TREATMENT KNOWLEDGE AND SKILL	C	I	COMMENTS
1 2 3 4 5 -identifies self and purpose of visit -uses appropriate open-ended questions -establishes and maintains rapport -listens to patient -respects patient (shows empathy and concern) -is aware of non-verbal communication -able to maintain control and re-focus if necessary -satisfactory closure of visit (recap plus identification of goals for future involvement)			
1 2 3 4 5 6 7 8 9 10 -prepares setting and uses appropriate patient safety precautions -demonstrates correct patient assistance and handling skills			
1 2 3 4 5 -demonstrates skill in communicating instructions, feedback and encouragement to patient			
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 -adapts treatment program to individual patient -demonstrates appropriate use of equipment, tools and aids			
1 2 3 -completeness of treatment (time management from beginning to end of session)			

(continued .../2)

ORAL JUSTIFICATION			COMMENTS
1 2 3 4 5 6 7 8 9 10 -integration of problems with OT treatment			
1 2 3 4 5 -rationale for choice of modality			
1 2 3 4 5 6 7 8 9 10 -rationale for choosing the specific treatment procedure			
1 2 3 4 5 6 7 8 9 10 -observation about patient's performance during treatment sesions			
WRITTEN TREATMENT PLAN			
1 2 -goals			
1 2 3 4 5 -objectives			
T O T A L		/80	

A PASSING MARK IS 48

STUDENT NAME _____

DATE _____

TREATMENT OBJECTIVE _____

EVALUATOR _____

_____

File: Tx.eval.OC704p2

Appendix F

OC804 - CLINICAL PROBLEM SOLVING, LEVEL 3B - W89

3. Practical Examination OC 803-804

The practical examination is a two part exercise which takes place the week of February 29, 1988. It will be graded out of 50 marks. It will be conducted according to the following format:

Part A

Student will receive a brief description of the patient 15 minutes prior to the interview.

Student will interview the simulated patient for 30 minutes.

One evaluator will observe and assess the student's performance using the clinical evaluation form.

If possible a one way viewing room will be used during the interview.

Part B

Student will be given one hour and 15 minutes to write up the problem, using the practical write up booklet (will be posted 2 weeks prior to practical exam).

Student may use "open book" to complete this section.

Pre-written material will not be accepted as part of the problem write up.

Part C

Student will submit the completed booklet to the evaluators at which time there will be a 10 minute period for feedback about the interview.

Student will be told if he/she has passed the interview component of the practical exam.

A schedule and any additional information will be posted one week prior to the practicuum indicating times, dates, rooms and names of the evaluators.

(Mohawk College Occupational Therapy Programme C.P.S. Level 3B 1988)

OCCUPATIONAL THERAPY
IIIB

O.T. TECHNIQUES #803
CLINICAL PROBLEM SOLVING #804
PRACTICAL EXAMINATION
EVALUATION FORM

PRACTICAL SESSION	U	S	G	E	COMMENTS	MAX SCORE	STUDENT'S SCORE
PRESENTATION - careful in personal grooming and appearance - attitude & actions are in keeping with the professional situation						2	
INFORMATION GATHERING - bio: meds: vegetative signs/ psycho: mental status social: vocation : avocation : family - organized format, covers all areas indicated by the problem - pacing interview appropriately & effective use of time management - reviews other issues related to main problem						8	
INTERVIEWING/ASSESSING TECHNIQUES - opens session - introduces self - states purpose of interview - involves patient : explanation of role : explanation of role within team						3	
- uses therapeutic techniques : probing previous issues : offering leads : clarifying : reflecting : validating : orienting statement : direct questioning : using silence : listening attentively : using open ended questions : picking up on verbal & non-verbal cues - facilitates response from patient - modifies to suit patient's discomfort and disability - adapts style and techniques to suit patient's response and to elicit information - controls situation appropriately						8	

PRACTICAL SESSION	U	S	G	E	COMMENTS			
- closes session by recapping and summarizing plus identifying nature of future contacts						3		
- problem identification : elicits a complete description of problem areas : summary/synthesis of problems are specific and concrete in relation to OT treatment - communicates synopsis of problem in an effective manner for that patient						6		
INTERPERSONAL SKILLS - establishes and maintains rapport with patient - shows respect for patient and exhibits concern and sympathy - conveys a genuineness and openness in interaction with patient - language use and content consistent with patient's level of understanding						10		

LEGEND

U - unsatisfactory
S - satisfactory
G - good
E - excellent

TOTAL _____
40

Student _____

Evaluator _____

Date _____

General Comments/Recommendations/Learning Prescription

OT TECHNIQUES (OC803)

AND

OT CPS (OC804)

PRACTICAL WRITE UP

YEAR III, 1989

STUDENT'S NAME: _____

EVALUATORS: _____ _____

DATE: _____

MARK COMPUTATION:

Interview Mark: _____/40 TIME IN _____

Write Up Mark: _____/60 OUT _____

Final Mark: _____/100

---- VALUE ---- _____/50

Name: _____

1. Mental Status (formulated as a paragraph) [5 marks]

2. Problem List [7 marks for completeness] [3 marks for underlining those problems you judge as being most significant and stating why]

Name: _____

3. Further Assessments Required (list in order of administration and justify the need for these assessments) [10 marks]

(chart form may be used if you wish)

Name: _____

4. Treatment Goals (state prioritized goals and related objectives) [10 marks]

Name: _____

5. For EACH of the objectives:

   1. outline treatments related to that objectives (in order of administration)

   2. state the theory base for your treatments and justify your choices

   [20 marks]

   (chart form may be used if you wish)

Name: _____

6. Treatment Schedule (this must outline course of treatment until discharge [5 marks]

(chart form may be used if you wish)

Appendix G

GUIDELINES FOR PRACTICAL EVALUATION: OC 903-904

The pediatric practical is a three part exercise which takes place with a two and one half hour period during week 6. It will be graded out of 100 marks (50% to OTT and 50% to CPS) based on the following format and using the evaluation form that follows.

The practical will be carried out by pairs of students on one child with a disability, aged 0 to 18 years. Each pair of students will receive a brief case description the day prior to the practical. At the same time, each student will receive guidelines as to the type of assessment and treatment to be performed in the practical.

PART A

- the first 15 minutes will be allowed for a joint interview of parent and child
- the next 30 minutes will be allotted as "assessment" time
- two evaluators will observe and assess the students' performance using the clinical evaluation form (Part A)

PART B

- the next 30 minutes will be allotted as "treatment" time (15 minutes per student
- each student will have prepared, in advance, a one page treatment outline
- two evaluators will observe and assess the students' performance using the clinical evaluation form (Part B)

PART C

- following a 20 minute period to allow the student to synthesize the data obtained from the practical session each student will return individually for a 25 minute oral presentation/examination (10 minutes for presentation, 5 minutes for questions, 10 minutes for feedback)
- at this time, each student will bring in and justify his/her treatment outline
- two evaluators will assess the student's performance using the clinical evaluation form (Part C)

NOTE:
It is important to remember that parents and children have volunteered for this assessment in order to provide a learning experience for OT students. These children are likely receiving treatment at the present time, therefore, discretion regarding questioning and offering suggestions must be used by the students. ALL INFORMATION OBTAINED IS HIGHLY CONFIDENTIAL.

*** A schedule will be posted in the third week, which will indicate pairing of students, names of evaluators, date, time and location of practicuum.**

	PERFORMANCE: UNSATIS-FACTORY	SATIS-FACTORY	EXCELLENT	N/A	COMMENTS	MAXIMUM SCORE	STUDENT SCORE
PREPARATION chooses appropriate equipment and prepares room using safety precautions							
personal appearance						5	
I INTERVIEWING TECHNIQUES - opens and closes session appropriately							
- elicits complete description of problem areas							
- picks up cues (verbal & non-verbal)							
- facilitates responses of parent and child						10	
II PHYSICAL ASSESSMENT TECHNIQUES - explores all areas indicated by the situation but avoids unnecessary features							
- performs techniques correctly and efficiently for: a) range of motion b) reflex seating c) assessment of muscle tone & power							
- modifies the situation to suit the parent's discomfort and disability						10	
IV DEVELOPMENTAL ASSESSMENT TECHNIQUES - uses a framework-explores all areas							
- performs techniques correctly and efficiently for: a) basic senses b) fine motor c) gross motor d) personal social/behaviour e) cognitive/perceptual/language f) ADL							
- modifies tasks to suit the child mentally and physically						10	
V INTERPERSONAL SKILLS - establishes and maintains rapport with child and parent							
- shows respect for patient; exhibits empathy and concern							
- communicates appropriately with child							
- acts in a professional manner as a team member							
- maintains control of assessment session						5	
TOTAL						40	

ART B
REATMENT SESSION

	PERFORMANCE: UNSATIS-FACTORY	SATIS-FACTORY	EXCELLENT	N/A	COMMENTS	MAXIMUM SCORE	STUDENT SCORE
PREPARATION chooses appropriate equipment prepares child and parent uses safety precautions						5	
TREATMENT TECHNIQUES demonstrates skill in treatment incorporating knowledge of safety, physical condition (basic senses, tone, etc.) in the following:							
handling						5	
positioning						5	
specific treatment of developmental areas - gross motor							
- fine motor							
- cognitive/perceptual/language							
- ADL							
- modifies task to suit the child mentally and physically						10	
INTERPERSONAL SKILLS maintains rapport with parents and child							
shows respect for patient; exhibits empathy and concern							
communicates appropriately with child, facilitating maximum response							
maintains control of assessment session						5	
TOTAL						30	

PART C
ORAL JUSTIFICATION

	PERFORMANCE				COMMENTS	MAXIMUM SCORE	STUDENT SCORE
	UNSATIS-FACTORY	SATIS-FACTORY	EXCELLENT	N/A			
I PHYSICAL ASSESSMENT - to include findings on reflex development, muscle tone, muscle power, range of motion, deformities - overall impressions						5	
II DEVELOPMENTAL ASSESSMENT - to include findings re basic senses, gross motor skills, fine motor skills, personal/social behaviour, cognitive and language, ADL development where applicable - developmental level						5	
III PROBLEM IDENTIFICATION - summary of problems in order of priority						5	
IV TREATMENT OUTLINE - justification of treatment goals and chosen techniques and any modifications necessary based on assessment findings						10	
V STYLE - format, presentation						5	
TOTAL						30	

TOTAL PARTS: A _____

B _____

C _____

_____/100

50% TO CPS _____

50% TO OTT _____

Appendix H

TRIPLE JUMP

EVALUATION FORM

STUDENT _____ DATE _____

TUTOR _____

PART I	MARKS	COMMENTS
HYPOTHESIS GENERATION Key mechanisms of problem (comprehensive, clear, relevant)	2	
IMMEDIATE DATA SEARCH Appropriate & Efficient Data Gathering	3	
PROBLEM FORMULATION Final problem formulation should adequately characterize patient problems	3	
LEARNING ISSUES Description of learning issues raised by problem	2	
LEARNING PLAN Outline of plan to pursue these issues	2	
MAXIMUM 12		
PART II INDEPENDENT DATA SEARCH Description of process of implementation of learning plan (efficient use of time and resources). Description of data collected (accurate, at appropriate level)	2	
MAXIMUM 2		
PART III SYNTHESIS Ability to synthesize data into new problem formulation using bio-psychosocial approach. Outline of O.T. process (clinical features, goals, treatment)	7	
Style (Organization, Presentation)	4	
MAXIMUM 11		
TOTAL GRADE	25	

Appendix I

TRIPLE JUMP SAMPLE

Mrs. Gibson is an 86 year old woman admittd to the Rehab unit after surgery for a total hip replacement, following a fall at home in which she fractured her left hip.

(This information is given to the student).

C.P.S. TUTORIAL EVALUATION

	GR	M	F	
PREPARATION Demonstrates the ability to: -provide sound references (quality, quantity, and variety) -apply critical appraisal skills -utilize preparation time effectively	4			MID-TERM FINAL
PROBLEM SOLVING SKILLS Demonstrates the ability to: -generate hypotheses -identify problems -identify learning issues -apply new knowledge -follow-up unresolved or recognized issues (identified)	8			MID-TERM FINAL
GROUP DYNAMICS -Attends all sessions punctually - explains absences -presents relevant data -initiates discussion -encourages group participation and maintenance by: -sharing data -supporting others -probing -clarifying -demonstrating courtesy -listening effectively	5			MID-TERM FINAL
EVALUATION -summarizes issues -critiques problem solutions & processes - "content vs. feelings" -demonstrates the ability to evaluate -self -peers	3			MID-TERM FINAL
LEARNING PRESCRIPTION -summarizing - areas of strength - areas which require attention				MID-TERM FINAL

STUDENT'S SIGNATURE: _____ TUTOR'S SIGNATURE: _____